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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/617,029

07/11/2003

Kenichi Komiya

047373-0133

2710

22428

7590

08/25/2004

FOLEY AND LARDNER

SUITE 500

3000 K STREET NW

WASHINGTON, DC 20007

EXAMINER

PHAM, HAI CHI

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/617,029	Applicant(s) KOMIYA ET AL.	
	Examiner Hai C Pham	Art Unit 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-19 and 21-26 is/are rejected.
- 7) ☒ Claim(s) 5 and 20 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>07/11/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. Claim 13 is objected to because of the following informalities:
 - It appears that claim 13 is a dependent claim from claim 11 instead of claim 1 since it claims an "image forming device" instead of a "light beam scanning apparatus".Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 10-15, 22-24, 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Arai (U.S. 4,999,718).

Arai discloses an image recording apparatus having a light beam scanning apparatus comprising a light beam generating unit (131, Fig. 6) having a single laser for generating a laser light beam, at least two modulators configured to modulated said light beam, said at least two modulators outputting a modulated signal (39, Fig. 1) including image data (corresponding to inputted digital video signal) for a common scan line in a main scanning direction (the outputs from the comparators 6 and 7 serve as two-

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channel pulse-width modulation signals 28 and 29) (col. 2, line 55 to col. 3, line 2 and col. 4, lines 1-8), and at least one image processor configured to transfer said image data to said at least two modulators (Fig. 1). With regard to claim 24, Arai further teaches means for combining said plurality of modulated signals (28 and 29) into a combined modulated signal (39) (as shown in Fig. 1, the two modulated signals 28 and 29 are ORing to produce the modulated signal 39 for driving the laser light source)

The method claims 14, 15 and 22 are deemed to be clearly anticipated by the functions of the above structures.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-4, 6, 18-19, 21 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai in view of Daniele et al. (U.S. 4,837,636).

Arai discloses all the basic limitations of the claimed invention except for the first modulator being configured to output a modulated signal for odd pixel image data and the second modulator being configured to output a modulated signal for even pixel image data.

Daniele et al. discloses an image recording device wherein the laser light source is driven based on two data channels A and B consisting of odd and even pixels of the

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same main scan line extracted from the input data provided by the photodiode sensors (see Figs. 3-5 and associated discussions).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Arai with the aforementioned teaching of Daniele et al. The motivation for doing so would have been to suppress PWM converter distortions.

With regard to claims 4 and 5, Arai teaches the modulation signal (39) being used to form a common main scan line where the odd and even pixels are aligned, and the pulse width modulation is based on the same video clock.

6. Claims 7-9, 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai in view of Kemmochi et al. (U.S. 5,148,287).

Arai discloses all the basic limitations of the claimed invention including a combiner coupled to the two modulators, the combiner being an OR gate circuit (as shown in Fig. 1, the two modulated signals 28 and 29 are ORing to produce the modulated signal 39 for driving the laser light source), but fails to explicitly disclose the laser driver.

However, it old and well known in the art that a laser driver circuit is commonly coupled to the PWM circuit and electrically connected to the laser light source such that the laser light source is driven based on the provided pulse-width modulated signal as evidenced by Kemmochi et al. at Fig. 1.

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It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the laser driver into the device of Arai since Kemmochi et al. teaches this to be known in the art to provide the necessary laser driver circuit in the laser printer.

Allowable Subject Matter

7. Claims 5 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: the primary reason for the indication of the allowability of claims 5 and 20 is the inclusion therein, in combination as currently claimed, of the limitation "wherein the first modulator is synchronized with a reference clock" while "the second modulator is synchronized with a delayed reference clock", which is not found taught the prior art of record considered alone or in combination.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D Meier can be reached on (571) 272-2149. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HAI PHAM
PRIMARY EXAMINER

August 21, 2004